ON SOME NEW SPECIES OF SHELLS FROM NEW ZEALAND AND AUSTRALIA, AND REMARKS UPON SOME ATLANTIC FORMS OCCURRING IN DEEP WATER OFF SYDNEY.

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PLATE VII. Figs. 1–7.

The shells from New Zealand about to be described, together with several specimens of *Helicidæ*, were sent as a donation to the Natural History Museum last year by Mr. H. Suter, of Christchurch, New Zealand, and a member of this Society. He also sent four examples of a shell which bears a very remarkable external resemblance to certain smooth forms of our *Purpura lapillus*. It was described by Hombron and Jacquinot[1] under the name of *Purpura patens*, and does not appear to have been noticed since their time. Tryon,[2] not knowing the species, except from description, wrongly considered it to be probably the same as *P. Dumasi*, Vélain,[3] a species occurring at the Island of St. Paul, in the Indian Ocean. This erroneous opinion is quite excusable, owing to the great resemblance in certain specimens of the two species. They are, however, not only specifically distinct, but belong to different genera. The *Purpura patens* has a Muricoid operculum, and, until the animal is known, may be placed provisionally in the genus *Trophon*. On the other hand, the operculum of *P. Dumasi* is normally Purpuroid, and consequently there is no doubt respecting the position of that species. This was not referred to by M. Vélain in his description, but as several specimens in the Museum Collection still retain this appendage, I can speak with certainty as to its Purpuroid character.

Scissurella Lyttletonensis, n.sp. Pl. VII. Figs. 1, 2.

Testa minuta, subauriformis, rosea vel albida, incrementi lineis striata; anfractus duo convexi, sutura profunda sejuncti; primus minimus, vix prominens, ultimus maximus, fissura labrali brevi supra medium instructus; apertura maxima, ovata, marginibus callo tenui junctis, columellari dilatato, reflexo, externo simplice, acuto. Diam. maj. 1·3; alt. 1 mm. *Hab.*—Lyttelton Harbour, New Zealand (H. Suter).

Only one other species of *Scissurella* has been recorded from New Zealand, namely, *S. Mantelli* of S. P. Woodward.[4] This, like nearly

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[1] Voy. Pole sud, Zool. vol. v. p. 85, pl. xxii. figs. 1–2.

[2] Manual Conch. vol. ii. p. 177.

[3] Arch. Zool. expér. et générale, 1877, vol. vi. p. 102, pl. ii. figs. 12–15.

[4] Proc. Zool. Soc. 1859, p. 202, pl. xlvi. fig. 8; Tryon's Manual Conch. vol xii. p. 54, pl. lvii. fig. 12 (copy of Woodward).

all the other known forms, has a thread-like keel on each side of the labral slit, and these are continuous up the spire almost to the apex. On the contrary, in the present species, the slit, besides being very short, is not ridged and keeled. Another peculiarity of *S. Lyttelton-ensis* is the presence of colour in the shell, which in other members of the genus is almost constantly whitish. *S. obliqua*, Watson, from Kerguelen Island, is smooth, but differs from this species in form, and in the slit, which is traceable much further up the spire. The rate of increase is much more rapid in *S. Lytteltonensis* than in *S. obliqua*, and consequently the body whorl is much larger in proportion to the spire than in the latter form.

Photinula Suteri, n.sp. Pl. VII. Fig. 3.

Testa minuta, imperforata, turbinata, diverse colorata, omnino nigrescens, nigra, albo variegata et radiata, rubra, albo radiata, etc.; anfractus 5 convexi, celeriter crescentes, spiraliter obscure striati, lineisque incrementi obliquis tenuissimis sculpti, ultimus ad peripheriam obtuse vel rotunde angulatus, infra in medio subimpressus; apertura obliqua, rotundata, longit. totius $\frac{1}{2}$ adæquens, intus iridescens; peristoma pallidum, marginibus callo tenui junctis, columellari arcuato, incrassato, reflexo. Diam. maj. 4, min. 3 mm.; alt. 4 mm.; apertura 2 mm. lata. *Hab.*—Lyttelton Harbour, New Zealand (collected by H. Suter).

The genus *Photinula* is mainly Antarctic in its distribution, for, of the seventeen species recorded (some of which are doubtfully distinct from one another), thirteen occur in South Patagonia; two of the remaining four are from unknown localities, one is Japanese, and one from the Sandwich Islands.

Of the last species, *P. sandwichiana*, of A. Adams, there are specimens in the Cumingian Collection, labelled "New Zealand," and I am inclined to think that they really occur in that locality.

The present species is much smaller than that form, indeed, the smallest of this group of *Trochidæ*. It is also different in shape, being more conical, with a higher spire.

It is remarkable for its variation in colour. Some specimens are entirely black, others are black with whitish rays from the suture to the periphery, and not infrequently there is a series of whitish spots or short rays on the middle of the base. In other examples the ground-colour is reddish or pinkish, and is interrupted with pale rays and spots.

In some respects *P. fusca*, A. Adams, the habitat of which is unknown, is very like this species. It is, however, considerably larger, and much more distinctly spirally striated.

Acmæa Helmsi, n.sp. Pl. VII. Figs. 4, 5.

Testa parva, depresse capuliformis, fere lævis, cæruleo-cinerea, lineis numerosis radiantibus tenuibus rufo-nigris picta, infra apicem subterminalem leviter concava, postice convexa, arcuata; pagina interna viridis, apicem versus albida, rufo sparsim notata, ad mar-

ginem haud crenulata, limbo angusto, flavo, radiis rufo-nigris notato, circumdata. Long. 11·5, diam. 9 mm; alt. 4 mm. *Hab.*—Greymouth, West coast of South Island, New Zealand (collected by R. Helms).

This species appears quite distinct from the other forms recorded from New Zealand. The interior in coloration somewhat resembles that of *Patella floccata*, Rve., but in other respects this species is very different. It is smaller, the form is more cap-shaped, the apex is more terminal, and the radiating lines are regular and not broken up as in that species, which, as seen from above, has a tesselated aspect. The number of radiating lines appears to vary from forty to fifty judging from the examples at hand.

P. floccata is retained in the genus *Patella* by Pilsbry, but, from the appearance of the shell, I should be inclined to locate it in *Acmæa*. Hutton also has placed it in *Patella*. It is considered by both of these authors synonymous with *P. pholidota* of Lesson, and the latter is held by Pilsbry to be a variety of the well-known *P. radians* of Gmelin. This appears to me an erroneous conclusion, for several of the characters described by Lesson are not applicable to *P. radians*. Neither do I believe that Reeve's *P. floccata* is synonymous with *P. pholidota* or *radians*.

I would here also call attention to another 'lumping' of species from New Zealand. Pilsbry states that "*P. affinis* of Reeve scarcely differs from the typical *radians*." He certainly has never seen *P. affinis*, or he would not have made such a statement. It is quite distinguishable by its peculiarly elongate form. The locality, "New Zealand," is only on the authority of Mr. Cuming.

LEPETA (?) ALTA, n.sp. Pl. VII. Figs. 6, 7.

Testa parva, alta, capuliformis, convexa, flavo-alba, concentrice et radiatim tenuissime striata; apex subcentralis, acutus, recurvus; apertura rotunde ovata; peristoma simplex, acutum; cicatrix interna antice peculiariter incurvata et reflexa. Longit. 7, diam. 6 mm; alt. 5·5 mm. *Hab.*—Off Sydney, in 410 fathoms, station 164.

This curious little species was obtained by the "Challenger" Expedition at the above station, and has been kindly placed in my hands for description by Mr. J. C. Melvill. It is provisionally placed in *Lepeta*, as conchologically it appears to agree with the typical forms of that genus. It is whitish and invested with a thin epidermis like *L. cæca*, and is radiately and concentrically sculptured.

I would take this opportunity of recording the occurrence of certain species at this same locality, Station 164, which hitherto have been regarded as peculiar to the Atlantic. The specimens in question were picked out of samples of sea-bottom, which have been examined since the reports on the *Gastropoda* and *Lamellibranchiata* by the Rev. R. Boog Watson and myself respectively were published. Mr. Watson, who examined the Gastropods, questioned the correctness of the locality from the presence of these Atlantic forms, and was inclined to believe that some mistake must have occurred. I also at first held

the same view; but, as Dr. Murray is convinced that no such error in the locality could possibly exist, I feel bound to withdraw that opinion. The following species are common to the North Atlantic and Station 164 :—

Rissoa deliciosa, Jeffreys.
Dentalium ensiculus, Jeffreys.
,, *panormitanum*, Chenu.
Cuspidaria teres, Jeffreys.
Poromya neæroides, Seguenza.

Of these identifications I have no doubt whatever, and those of the subjoined forms, also North Atlantic species, are probably correct, but not absolutely certain, as the material at hand is insufficient.

Cadulus propinquus, Sars., or *C. curtus*, Jeff.
Cylichna ovata, Jeff.
Dentalium capillosum, Jeff.
Scaphander gracilis, Watson.
Scissurella crispata, Fleming.
Seguenzia carinata, Jeff.

In my report above mentioned (pp. 4 and 5) I have given a number of instances of equally remarkable distribution. In the cases there instanced only individual species are noticed. On the contrary, in the series under consideration there are at least five species common to the far-distant localities referred to, and it was this superior number which to a great extent made Mr. Watson and myself sceptical.

In conclusion I will call attention to a similar and very remarkable case of distribution which has been recorded by Mr. Brazier.[1] The shell in question belongs to the well-known Mediterranean species, *Euthria cornea* of Linnæus, and was obtained alive by a relative of Mr. Brazier, Mr. R. C. Rossiter, at Wagap, east coast of New Caledonia.

Geographical distribution is such a hopeless enigma that I dare not venture to hazard any theory with regard to the present instances.

EXPLANATION OF PLATE VII. FIGS. 1–7.

Figs. 1, 2.—Scissurella Lytteltonensis.
,, 3.—Photinula Suteri.
,, 4, 5.—Acmæa Helmsi.
,, 6, 7.—Lepeta? alta.

[1] Proc. Linn. Soc. N.S.W. 1889, vol. iv. p. 117.